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Report: hw2

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Description:

I finish this homework by using two weeks time. At the first, I have misunderstood the instruction given so I have done in the wrong way and the wrong codes will be shown in the last page. After that, I try to ask the tutorial assistance, seniors and also course mate to solve my problems. In this homework, I have learnt that the ways to debug and also the correct ways to use for loops inside the for loops. The concept that I used in the program is for loops and if-else. As the argument is not fix so for loops is used to control the program to run 'P'times in order to make sure that all the integer of input answer have been read and determine. The if-else is used to determine the argument have been inserted in the correct form, if the form inserted is not correct, the program will be directly ended. In addition, as the argument inserted is in the strings form, typecast technique is used to transform the string form into integer form. The ways of separating the 'P'-digit input answer into 'P'integer is by diving and take the reminder. In this two weeks I have experienced that sleep at 3am everyday.
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```

Code:
```c
 1 #include<stdio.h>
 2 #include<stdlib.h>
 3 #include<time.h> //to set a random number
 4 #include<string.h> //to check the length of the input
integer
 5
 6 int main(int argc,char *argv[])
 7 {
 8     int H,X,N,P,Lp,Ln,i,j,t,input,g,m,x,y;
 9     Ln=strlen(argv[1]); //Ln=the length of input N
10     Lp=strlen(argv[2]); //Lp=the length of input P
```

```c
11    if (Lp!=1||Ln!=1) //to check that if the command
agrument list is not single digit
12    {
13    printf("the command argument list is larger than
1-9.\n");
14    return 0;
15    }
16
17    //to typecast the strings to integer
18    N=atoi(argv[1]);
19    P=atoi(argv[2]);
20    if(N==0||P==0) //the integer '0' is not accepted
21    {
22    printf("The input of N or P is not valid.\n");
23    return 0;
24    }
25
26    if (P>N){ //the number of positions can't larger than
the number of integer to play with
27    printf("since P>N,the program is not work,plaese input
correctly.\n");
28    return 0;}
29
30    printf("The number of integer to play with:%d\nThe
number of positions: %d\n",N,P);
31
32    //to initialise the array to 0
33    int answer[100]={0};
34    int yo[100]={0};
35    //to set the answer ramdomly and also make sure that
the integer of the answer didn't repeat
36    srand(time(NULL));
37    for(i=1;i<=P;i++)
38    answer[i]=(rand()%N)+1;
39
40    for (i=1;i<=P;i++)//make sure that the integer of the
answer didn't repeat
41    {
```

```
42    t=0;
43       while (t==0)
44       {
45       t=1;
46          for (j=1;j<i;j++)
47          {
48             if (answer[i]==answer[j])
49             {
50             answer[i]++;//when there are numbers
repeated, number in array 'answer[i]'will plus to make it
different from others
51                if (answer[i]>N)
52                answer[i]=1;
53                t=0;
54
55             }
56          }
57       }
58    }
59    printf("ANSWER:");
60
61    for (i=1;i<=P;i++)
62    printf("%d",answer[i]);
63    printf("\n");
64    //to initialise the array to 0
65    int guess[100]={0};
66    //user input the answer and program allocate the unput
into array
67    printf("YOUR ANSWER:");
68    g=0;//When the answer of user guess is not exactly
correct, there is a marking that let the loop to continue and
user.
69    while(g==0)
70    {
71       for (x=1;x<=P;x++)
72       yo[x]=0;
73       scanf("%d",&input);//let the users to guess
```

```
74          for(m=P;m>=0;m--)//because the integer divided
from the 'input' have been reversed so the order of the loop
is also reversed
75          {
76          guess[m]=input%10;//take the remainder and put
into the array
77          input=input/10;//input divide by 10
78          }
79
80          H=0,X=0;//to initialise the variables to 0
81          for(i=1;i<=P;i++) //process to calculate the
number of H and X
82          {
83          y=0; //marking that 'i'th arrays have a 'H'
84              if(answer[i]==guess[i]) //to calculate H by
determing the number of 'i' in both array are the same
85              {
86              y=1;
87              H=H+1;
88              }
89
90              for(j=1;j<=P;j++)
91              {
92                  if (answer[i]==guess[j] && y==0)//to
calculate X by determining that the 'i'th of both arrays have
no marking 'y'
93                  {
94                  X=X+1;
95
96                  }
97              }
98          }
99
100         printf("There are %dH and %dX.\n",H,X);//the
number of 'H's and 'X's calculated is shown
101
102         if (H!=P)
103         {
```

```
104        g=0;
105        printf("Please try again");
106        printf("\n");
107        printf("YOUR ANSWER:");
108        }
109        if (H==P)
110        {
111        g=1;//markings of there are 'N' of 'H' and the
answer is correct
112        printf("BINGO!!!!!!");
113        printf("\n");
114        }
115
116    }
117
118 return 0;//the program ends.
119
120 }
```

Compilation:

        gcc -o hw2 hw2.c

Execution:

        ./ hw2

Output:

F74045018@c-2015-1:~/hw2> gcc -o hw2 hw2.c
F74045018@c-2015-1:~/hw2> ./hw2 9 7
The number of integer to play with:9
The number of positions: 7
ANSWER:3981724
YOUR ANSWER:3881736
There are 4H and 0X.
Please try again

```
YOUR ANSWER:3984172
There are 3H and 4X.
Please try again
YOUR ANSWER:3981724
There are 7H and 0X.
BINGO!!!!!!
```

The wrong ways I did the program before:

Code:

```
 1 #include<stdio.h>
 2 #include<stdlib.h>
 3 #include<time.h>
 4 int main(){
 5 int a;
6 int b;
 7 int c;
 8 int d;
 9
10 int M;
11 int N[4]={1,2,3,4};/*the integer inside the array can only be 1,2,3,4,5*/
12
13 printf("Please insert 4 integers within the range of 1 to 5, linespaces are required
to separate each integer.\n");
14
15 do{
16 scanf("%d",&M);
17 d=M%10;
18 c=(M/10)%10;
19 b=(M/100)%10;
20 a=(M/1000)%10;
21
22 if ((a>5||a==0)||(b>5||b==0)||(c>5||c==0)||(d>5||d==0))
23 {
24 printf("the input integer over the range of integer given.");
25 }
26 else if(a==b||a==c||a==d||b==c||b==d||d==c)
27        if(a=b||a==c||a==d||b==c||b==d||d==c)
```

```
28      {
29      printf("the input integer repeat");
30      }
31      else
32      {    }
33
34 else if(a==1&&b==2&&c==3&&d==4)
35      if(a==1&&b==2&&c==3&&d==4)
36      {
37      printf("4H\n");
38      }
39      else
40      {}
41
42
43 else
if((a==1&&b==2&&c==3&&d!=4)||(a==1&&b==2&&c!=3&&d==4)||(a==1&&b!=2&&
c==3&&d==4)||(a!=1&&b==2&&c==3&&d==4))
44
if((a==1&&b==2&&c==3&&d!=4)||(a==1&&b==2&&c!=3&&d==4)||(a==1&&b!=2&&
c==3&&d==4)||(a!=1&&b==2&&c==3&&d==4))
45      {
46      printf("3H");
-- INSERT --
6,7                 5%
47      }
48      else
49      {    }
50
51 else
if((a==1&&b==2&&c!=3&&d!=4)||(a!=1&&b!=2&&c==3&&d==4)||(a==1&&b!=2&&
c!=3&&d==4)||(a!=1&&b==2&&c==3&&d!=4)||(a!=1&&b==2&&c!=3&&d==4)||(a=
=1&&b!=2&&c==3&&d!=4))
52
if((a==1&&b==2&&c==4&&d==3)||(a==2&&b==1&&c==3&&d==4)||(a==1&&b==3&
&c==2&&d==4)||(a==4&&b==2&&c==3&&d==1)||(a==3&&b==2&&c==1&&d==4)||
(a==1&&b==4&&c==3&&d==2))
53      {
```

```c
54        printf("2H2X");
55        }
56        else
57        {
58
if((a==1&&b==2&&c==4&&d!=3)||(a==2&&b!=1&&c==3&&d==4)||(a==1&&b==3&
&c!=2&&d==4)||(a==4&&b==2&&c==3&&d!=1)||(a==1&&b==4&&c==3&&d!=2)||(
a==1&&b==2&&c!=4&&d==3      )||(a!=2&&b==1&&c==3&&d==4)||(a==1&&b!=3
&&c==2&&d==4)||(a!=4&&b==2&&c==3&&d==1)||(a==1&&b!=4&&c==3&&d==2))
59            {
60            printf("2H1X");
61            }
62            else
63            {
64            printf("2H");
65            }
66
67        }
68
69
70 else if(a==1||b==2||c==3||d==4)
71
72        if((a==1&&b==4&&c==2&&d==3)||(a==1&&b==3&&c==4&&d==2)
73        ||(b==2&&a==4&&c==1&&d==3)||(b==2&&a==3&&c==4&&d==1)
74        ||(c==3&&a==2&&b==4&&d==1)||(c==3&&a==4&&b==1&&d==2)
75        ||(d==4&&a==3&&b==1&&c==2)||(d==4&&a==2&&b==3&&c==1))
76        {
77        printf("1H3X");
78        }
79        else
80        {
81            if((a==1&&b==1||3||4&&c==1||2||4&&d!=1||2||3||4)
82            ||(a==1&&b==1||3||4&&c!=1||2||3||4&&d==1||2||3)
83            ||(a==1&&b!=1||2||3||4&&c==1||2||4&&d==1||2||3)
84
85            ||(a==2||3||4&&b==2&&c==1||2||4&&d!=1||2||3||4)
86            || (a==2||3||4&&b==2&&c!=1||2||3||4&&d==1||2||3)
```
-- INSERT --

```
 87          ||(a!=1||2||3||4&&b==2&&c==1||2||4&&d==1||2||3)
 88
 89          ||(a==2||3||4&&b!=1||2||3||4&&c==3&&d==1||2||3)
 90          ||(a!=1||2||3||4&&b==1||3||4&&c==3&&d==1||2||3)
 91          ||(a==2||3||4&&b==1||3||4&&c==3&&d!=1||2||3||4)
 92
 93          ||(a==2||3||4&&b==1||3||4&&c!=1||2||3||4&&d==4)
 94          ||(a==2||3||4&&b!=1||2||3||4&&c==1||2||4&&d==4)
 95          ||(a!=1||2||3||4&&b==1||3||4&&c==1||2||4&&d==4))
 96          {
 97          printf("1H2X");
 98          }
 99          else
100          {
101          //as the input integer can't be repeated,so the output of '1H1X' will
never appear.
102             }
103        }
104
105     else if (a==2||3||4&&b==1||3||4&&c==1||2||4&&d==1||2||3)
106     if (a==2||3||4&&b==1||3||4&&c==1||2||4&&d==1||2||3)
107     {
108     printf("4X");
109     }
110     else
111     {
112
if((b==1||3||4&&c==1||2||4&&d==1||2||3)||(a==2||3||4&&c==1||2||4&&d==1
||2||3)||(a==2||3||4&&b==1||3||4&&d==1||2||3)||(a==2||3||4&&b==1||3||4
&&c==1||2||4))
113          {
114          printf("3X");
115          }
116          else
117          {
118          //as the input integer can't be reeated,so the output of
'2X','1X''0X'will never appear.
```

```
119              }
120         }
121
122              }while((a!=1)&&(b!=2)&&(c!=3)&&(d!=4));
123 return 0;
124 }
125
126
127 /*else if(a==1&&b==2&&c==3&&d==4)
8   34       if(a==1&&b==2&&c==3&&d==4)
129    35        {
130       36       printf("4H\n");
131         37        }
132           38        else
133             39         {     }
```